animals were allowed to go to term there was no evidence of pregnancy up to 30 days after successful mating. When a sham operation was performed there was normal implantation in all 20 rats.

Effect of Removal of Suture.—Ten female rats in which implantation did not occur when they had a suture in one or both horns had their sutures removed and were mated again. There was now evidence of implantation in all these rats.

Effect on Lactation and Litter.—Ten rats delivered a litter from only one horn because of the presence of a suture in the other. There was normal lactation as measured by the weight gain of the offspring before and after feeding. The litters of all 10 animals were normal and there was no evidence of teratogenicity.

Effect on Gonadotrophin Content of the Pituitary and the Oestrous Cycle of Female Rats.—Uterine sutures were placed in one horn of the uterus in 10 rats with normal cycles, while bilateral uterine sutures were placed in another 10. The sutures had no effect on the cycles, which continued to be regular. The gonadotrophin content of the pituitary gland was also not altered in any way in rats with bilateral or unilateral sutures.

Effect on Sperm Migration.—The intrauterine sutures had no deleterious effect on the upward migration of sperm after mating and sperm was detected in the upper third of both uterine horns in all 20 unilaterally sutured animals.

Discussion

Our results indicate that an intrauterine suture in rats is an efficient antifertility agent which acts by preventing implantation on the side on which it is placed. It does not prevent implantation in the other horn. This fact, together with the findings that the gonadotrophin content of the pituitary gland is not altered and that the suture has no effect on the oestrous cycle or lactation or milk ejection, indicates clearly that the anti-implantation effect is not a central effect mediated by blocking the release of the pituitary hormones. This absence of any action of the intrauterine suture on the pituitary in these studies is encouraging, as any antifertility drug or agent which has an effect on the pituitary would be regarded with justifiable caution before being recommended for general use. The suture does not appear to act either by blocking the release of the ovarian hormones or by preventing sperm migration. When the suture was removed the female rats became pregnant again, indicating that this is a reversible effect. There was no abnormal behaviour of the animals with sutures. Pharmacological studies are in progress to investigate the effect of various substances on the uterine horn itself and to see whether the horn with the suture behaves in any way differently from the contralateral horn without a suture.

Summary

The effect has been studied of an intrauterine silk thread suture on the fertility of female rats.

An intrauterine suture in the lumen prevents implantation, after successful mating, in the horn in which it is placed. It has no effect on the release of the pituitary or ovarian hormones. There is no evidence of teratogenicity. There is no adverse effect on lactation or the growth of litter born from the other horn.

The animals with the intrauterine suture behave normally.

When the suture is removed the fertility is restored.

The suture must be in position to prevent implantation—a sham operation is not enough.

The intrauterine suture does not prevent the upward migration of sperm in the horn in which the suture is placed.

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Medical Memoranda

Infection due to *Mycobacterium xenopei*

Brit. med. J., 1965, **1**, 32–33

The name *Mycobacterium xenopei* was given by Schwabacher (1959) to an acid-fast bacillus isolated from a skin lesion in a South African toad, *Xenopus laevis*. This organism and another recently found in a second toad granuloma have now been examined by methods used to classify "opportunist" mycobacteria—that is, mycobacteria sporadically pathogenic for man. They have proved to be indistinguishable from the bacteria placed in group 3 by Marks and Richards (1962), and the name *M. littorale* recently proposed for this group must therefore be discarded in favour of *M. xenopei*.

M. xenopei is not uncommon in human material, the Tuberculosis Reference Laboratory having collected in the last decade 50 strains in England and Wales, all from adults. Most have been submitted for identification in the last two years, but this almost certainly reflects greater use of the laboratory and not a recent increase in prevalence. In the following analysis we have assumed strains to be clinically significant when isolated repeatedly from people who have disease unexplained by other causes. Lesions met with in these patients have usually been diagnosed as tuberculous clinically. Cases with an ambiguous history have been called "doubtful." In three patients infection was demonstrated in resected lung.

Significance of 50 *Strains of M. xenopei*

Clinically significant ...	20 pulmonary cases (16 M., 4 F.)
Doubtful significance ...	6 pulmonary cases (4 M., 2 F.)
Not significant (or information lacking)	17 pulmonary cases (9 M., 7 F., 1 unknown) 6 urinary cases (2 M., 4 F.) 1 post-operative sinus (M.)

Men appear to be more susceptible than women to *M. xenopei* just as with other opportunist mycobacteria. All but three of the isolations were made in London and towns near the south and east coasts of England and Wales. None occurred in the Midlands or North England despite the frequency of other opportunist mycobacteria in these areas. Sixteen non-significant isolations (including five from urine) were made in three particular laboratories which failed to provide a single significant or doubtful case, and it seems likely, therefore, that *M. xenopei* can occur as a contaminant during the collection or culture of specimens. In contrast, significant isolations were

widely distributed, no individual laboratory providing more than two.

The normal habitat of *M. xenopei* is not known. Toad infections are probably opportunistic like those in man. The optimum temperature in culture is about 42° C., and as the species grows very poorly at 25° C. it seems adapted to a warm environment, but at present there is no clue to its origin.

Note: The original culture of *M. xenopei* failed to grow at 45° C., unlike its subculture maintained in the National Collection, the second toad isolate, and the 50 human strains. This discrepancy may have had a technical origin such as a difference in inoculum size. Distinguishing features of *M. xenopei* are its easily emulsified colonies, long bacilli, temperature requirements and relative susceptibility to most antituberculous drugs, particularly isoniazid. It produces arylsulphatase and grows deep in semisolid medium.

We are obliged to Dr. A. Beck for allowing us to examine his strains (Beck *et al.*, 1963) and to Dr. E. Elkan for advice of the second toad infection.

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Brachial-basilar Insufficiency (The Subclavian Steal Syndrome)

Brit. med. J., 1965, **1**, 33–34

The numerous and sometimes bizarre symptom-patterns which occur in vertebrobasilar insufficiency have been the subject of two recent major British studies (Williams and Wilson, 1962 ; Bradshaw and McQuaid, 1963). These papers stressed the importance of the recognition and treatment of precipitating factors in this form of cerebrovascular insufficiency. These included movements of the head, cervical spondylosis, polycythaemia vera, anaemia, impaired oxygenation of the blood secondary to pulmonary or cardiac disease, and relative hypotension resulting from myocardial infarction, cardiac dysrhythmias, intercurrent disease, fatigue, overwork, and large meals. No reference, however, was made to brachial-basilar insufficiency (subclavian steal syndrome), concerning which there have been a few reports in both the radiological (Simon *et al.*, 1962 ; Philp *et al.*, 1963 ; Steinberg and Halpern, 1963 ; Fischer and Mattey, 1963 ; Ashby *et al.*, 1963) and general medical literature (Reivich *et al.*, 1961 ; North *et al.*, 1962 ; Mannick *et al.*, 1962 ; Irvine *et al.*, 1963 ; Williams *et al.*, 1963). The following report of a case of this form of basilar insufficiency discusses some of its important clinical and arteriographic implications.

CASE REPORT

A 51-year-old man was seen in February 1963 because of episodic squeamishness, choking sensations, dizziness, and headaches. During 1961, while working as a labourer, he had first noticed that if he passed up bricks with his right hand the arm soon became surprisingly weak and the shoulder painful. If he continued using the right hand, instead of changing to the left, dizziness developed and forced him to stop. All these symptoms were rapidly relieved by resting, but soon recurred when work was resumed. In the surgical, orthopaedic, and physical medicine departments these symptoms had been thought to be due to a rotator cuff lesion and had been treated with hydrocortisone injections without benefit.

The symptoms which brought him to the medical out-patient department in 1963 had been occurring three or four times weekly for three months. They took the form of attacks, of 10 to 30 minutes' duration, which started with a feeling of nausea and tightness in the neck and across the front of the chest. This was rapidly followed by prolonged vertigo and throbbing right-sided occipital headache. The attacks had been noted when he rose suddenly from a chair and when he was sawing wood with his right hand.

The pain and weakness of the right arm were in keeping with a diagnosis of arterial insufficiency rather than a rotator cuff condition. The symptom-composition and episodic nature of his recent attacks pointed to the syndrome of vertebrobasilar insufficiency, and the occurrence of his symptoms when using the right arm suggested that this was due to the subclavian steal mechanism. Physical examination supported this diagnosis, the pulses of the right arm being absent. In the left arm the pulses were normal and the blood-pressure was 120/80 mm. Hg. The pulses of the common carotid arteries were good and there were no bruits on auscultation of the neck or chest. He was admitted to hospital, where the diagnosis of the subclavian steal syndrome was confirmed by arch aortography (Figs. 1 and 2). Bilateral common carotid arteriograms and other appropriate investigations showed no abnormality. Through a sternum-splitting incision Mr. G. E. Mavor relieved the atheromatous occlusion of the right subclavian artery by endarterectomy. The pulses of the right arm were restored and the attacks have not recurred.

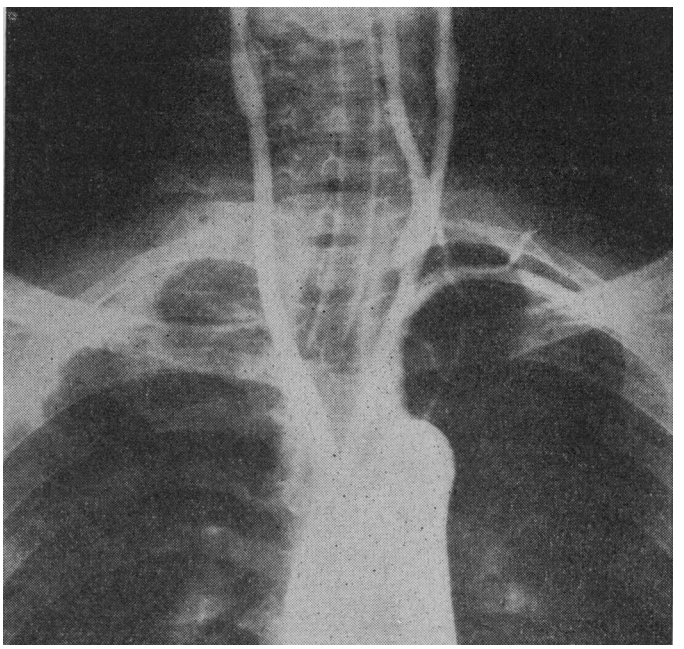

FIG. 1.—Arch aortogram during the early injection phase. This shows complete occlusion of the origin of the right subclavian artery with consequent failure of normal filling of the branches of this vessel, including the right vertebral artery.